

IRI Quality Assurance Procedures for Construction Management

(version 10/25/22)

In accordance with 23 CFR 637 Subpart B – Quality Assurance Procedures for Construction. Contractor test data will be used for acceptance and as the basis for quality adjustments. INDOT will execute a Quality Assurance (QA) program and validate the data as described herein.

1. Contractor equipment certification, ref ITM 917

The Contractor's inertial profiler shall be certified on a Department test track prior to use on a project in accordance with ITM 917. The inertial profiler shall have a current certification prior to use on a contract in the same year. Certification is valid through the expiration date indicated by the Department provided no significant equipment or software changes are made. The Contractor's operator(s) shall operate the equipment during the test track runs. A list of certified equipment will be posted on the Department's website.

2. Contractor operator certification, ref ITM 917

All operators of inertial profilers shall register for and attend the Department's operator course on a triennial basis and pass the exam at the completion of the course. After successful operation on the Department test track, each operator will be given a certification indicating that the operator is approved to operate a certified inertial profiler. The operator certification is valid through the indicated expiration date. A list of certified operators will be posted on the Department's website.

Operators may be removed from approved status for failure to follow the requirements for equipment operation, failure to perform site verification and testing as required, failure to produce accurate roadway profiles, or any other failure to follow the requirements for surface smoothness measurements.

3. Contractor Quality Control. Ref ITM 917

Contractors are required to verify their own equipment when arriving on a project site by performing the dmi, block, and bounce tests in the presence of the Engineer in accordance with ITM 917. At the completion of the verification, appendix A of ITM 917 is required to be completed.

The Contractor shall verify the repeatability of their own equipment by profiling a section of pavement selected at their discretion and completing a minimum of at least four consecutive runs with a Certified Operator. The section of pavement selected shall have a length of a tenth of mile in order to verify the repeatability of the equipment. The Contractor's verification of company equipment shall be completed at a minimum of every 60 days throughout the construction season from April 1st through November 31st. The Contractor's verification runs over the tenth of a mile section shall then be analyzed utilizing the ProVAL Certification module to ensure a passing repeatability score of 92% is achieved. The Contractor shall maintain a record of these verification runs for at least two years and shall produce such records upon the request of the Department.

4. INDOT Acceptance of Data & Dispute Resolution

a. Data Acceptance

The Department will perform annual Quality Assurance of the Contractor's MRI results by operating the Department profiler equipment on a portion of each Contractor's work completed each year and comparing the MRI results. When the Contractor's results do not agree with the Department's results, the Contractor's profiler equipment certification may be suspended until a further evaluation can be completed. The criteria utilized by the Department for QA will be as noted in section (c). The Department will notify the Contractor of any unacceptable results in a timely manner.

b. Dispute Resolution

The Department will allow an appeal period of fourteen calendar days from Contractor receipt of the Department's results prior to enforcing any suspension. The Contractor shall submit appeal results for the contract under evaluation which will be reviewed by the Department. If the Contractor's appeal results do not agree with the Department's results, the Contractor shall be required to perform a side-by-side evaluation on an active contract within 14 calendar days of receipt of the appeal results. Failure by the Contractor to schedule or successfully complete the side-by-side evaluation will result in suspension and require re-certification of the Contractor's profiler equipment.

The side-by-side will consist of a minimum of four runs each made by the Department and the Contractor on a section of pavement selected by the Department. The total number of side-by-side runs required will be determined at the Department's discretion. The criteria for acceptable side-by-side results when compared with the Department's results will be as noted below in section (c). The results of the side-by-side evaluation will be shared with the Contractor in a timely manner.

The Department's results will be utilized for smoothness payment in place of the Contractor's results unless the Contractor's appeal results are determined to be acceptable for payment. Sections where corrective action has taken place prior to the Department's data collection will utilize the Contractor's initial results prior to corrective action for payment.

c. MRI threshold

- i. The difference in MRI for each 1/10-mile section is less than 6.1 in/mi for a minimum of 80% of the 1/10-mile sections for each lane.
- ii. The difference in average MRI for each lane reviewed is less than 4.1 in/mi.

5. INDOT IRI Verification Procedures

INDOT will validate the quality of the profile data collected by Contractors as part of the IRI highway smoothness program. The Quality Assurance Program will require that a portion of the Contractor's MRI results be compared to INDOT's results.

a. Method of Tracking, Collecting, Organizing Contractor Data

All profile data files collected by the Contractor and all files utilized for analysis and payment shall be submitted to the PEMS in accordance with ITM 917. PEMS will upload all files submitted by the

Contractor and all files created by the Department during analysis and payment to the Intelligent Filing Cabinet system on ProjectWise. The “ProjectWise for Construction User Guide” requires smoothness files to be placed in the “Working Documents” folder of the Intelligent Filing Cabinet.

After placement of files in the Intelligent Filing Cabinet, the PEMS will then be required to fill out the “IRI Data Submission Form” by selecting the link with this title on the Department’s website (<https://www.in.gov/indot/div/construction.htm>) under the section titled “IRI Information”.

The IRI Data Submission Form results will be made available to both Construction Management and INDOT Research Departments. INDOT Research will also have access to the ProjectWise working documents folders for each contract under review. This procedure will facilitate tracking and notifying research personnel responsible for administering the verification program.

b. Selection of Contracts for Quality Assurance Review by the Department

The Department will utilize a system wide approach that will consist of selecting recently completed Contractor MRI results for comparison versus the INDOT results. The goal of INDOT’s QA program will be to check 25% of each Contractor’s smoothness acceptance testing contracts annually in order to accomplish verification of 10% of the total lane miles profiled by all Contractors on an annual basis. For each QA project site visit, the INDOT profiler will collect QA data for a minimum of 50% of the submitted data.

c. Statistical Analysis & Comparison of Data between INDOT & Contractor

The Contractor’s results will be compared to the Department’s results. The Contractor’s results will be considered acceptable and will be used for incentive payment if the following criteria are met:

- 1) The difference in MRI for each 1/10-mile section is less than 6.1 in/mi for a minimum of 80% of the 1/10-mile sections for each lane.
- 2) The difference in average MRI for each lane reviewed is less than 4.1 in/mi.

Conclusion

The Department will produce an annual report by no later than April of the following year. The report will consist of a single page summary of the results and a statistical summary spreadsheet included as part of the Appendix.

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